

**GOA UNIVERSITY
SUB POST OFFICE GOA UNIVERSITY
TALEIGAO PLATEAU
GOA 403 206**

TENDER NOTICE

REGISTRAR, GOA UNIVERSITY, invites sealed tender by 13.00 hrs. on 29/01/2018 for supply of “Single Crystal X-Ray Diffractometer” for Department of Chemistry. The tender should be submitted under two bid system. (1) Technical bid (to be opened on 29/01/2018 at 16.00 hrs.) (2) Financial Bid of only the technically acceptable offers will be opened on 06/02/2018 at 16.00 hrs. Tender form alongwith complete details of technical specifications, general terms & conditions including cost of tender form and EMD are available on website www.unigoa.ac.in.

Right to reject any or all tenders without assigning any reason is reserved by Goa University.

**(Prof. Y. V. Reddy)
Registrar**

GOA UNIVERSITY
TALEIGAO PLATEAU
GOA - 403 206

Tender for supply and installation of “Single Crystal X-Ray Diffractometer” as per specifications attached herewith for Department of Chemistry, Goa University.

Closing Date & Time : 29/01/2018 at - 13.00 hrs.

Opening Date & Time : 29/01/2018 at - 16.00 hrs.

1. Sealed item rate tender duly superscribed “QUOTATION FOR SUPPLY OF SINGLE CRYSTAL X-RAY DIFFRACTOMETER WITH ACCESSORIES FOR DEPARTMENT OF CHEMISTRY, GOA UNIVERSITY” due on 29/01/2018 addressed to HEAD, DEPT. OF CHEMISTRY GOA UNIVERSITY, TALEIGAO PLATEAU, GOA 403 206 should reach the University by 13.00 hrs. on 29/01/2018. The tender should be submitted under two bid system (a) Technical bid consisting of all technical details alongwith commercial terms and conditions and (b) Financial bid indicating itemwise price for the items mentioned in the technical bid.
2. The technical bid and financial bid should be sealed in separate cover duly superscribed and both the sealed covers are to be put in a bigger cover which should also be sealed and duly superscribed “Tender for supply of Single Crystal X-Ray Diffractometer with accessories” and addressed to Head, Dept. of Chemistry, Goa University, Taleigao Plateau, Goa 403206 should reach the University by 13.00 hrs. on 29/01/2018. Technical bid will be opened on the same day at 16.00 hrs. and Financial bid of only technically acceptable offers will be opened on 06/02/2018 at 16.00 hrs. in Department of Chemistry, Goa University.
3. The quoted scientific equipments should be of good/ standard quality and of reputed brand. The itemwise make/ brand/ model should be mentioned. List of customers where same equipment is installed and being used may be enclosed. The supplier is free to propose any kind of latest technology or features.
4. The tender/ proforma invoice should be valid for acceptance upto 120 days.

Contd...3/-

5. The scientific equipment should be supplied in one lot and within 90 days from the date of supply order.
6. The estimated cost of the equipment is Rs.120/ lakhs approximately.
7. The Earnest Money Deposit of 2%
8. of quoted value by way of CALL DEPOSIT RECEIPT OR DEMAND DRAFT of any scheduled bank drawn in favour of Registrar, Goa University should be furnished with the tender. The earnest money deposit shall be retained as a security deposit and the same shall be refunded on satisfactorily completion of supply of equipments and trial run of the same for one month after installation. The tender without E.M.D. in the form mentioned above is liable to be rejected. **The D.D. of Rs.1000/- towards cost of tender form should be drawn separately and both receipts should be enclosed in the technical bid.**
9. The taxes and their rates and other levies, if any, chargeable on the rates quoted for the items should be mentioned distinctly.
10. The material should be packed securely so as to avoid any damage in transit etc. **The quoted C.I.F. value should cover the insurance upto warehouse Goa University.**
11. The price should be quoted for supply of items upto destination i.e **C.I.F./C.I.P. DABOLIM AIRPORT, GOA.** India. The condition if any to make advance payment will not be entertained.
12. The parties quoting for proprietary items should issue a certificate to that effect.
13. The equipment should be quoted with five years comprehensive on site warranty. Annual maintenance cost after warranty period should be shown separately in the tender.
14. The pre-requisites for installation should be submitted alongwith the tender.
15. Installation:- The supplier/ authorised agents of the manufacturer should undertake initial installation and demonstration of the equipment at the University premises free of cost. One month trial period after commissioning the equipment should be guaranteed.

16. Guarantee: All the items should be guaranteed against manufacturing defects for a period of five years from the date of installation. During the guarantee period all servicing rendered including replacement of parts needing replacement under warranty period should be sent to us free of cost, freight prepaid. The A.M.C. charges after the warranty period should be mentioned in the quotation.
17. Reliable service after sales by trained personnel should be guaranteed.
18. The successful tenderer will have to attend University Office to sign a formal agreement after issuing supply/work order, if desired by the University. No T.A./D.A. will be paid.
18. Selected personnel of Goa University are to be trained to operate the equipment.
19. Right to reject the tender without assigning any reason is reserved by the University.

(Prof. Y.V.Reddy)
REGISTRAR

Encl: Specification of items.

Contd...5/-

Specification for the Single Crystal X-Ray Diffractometer

Sealed quotes compliant to the following specifications are invited from manufacturers / agents within 28 days for a floor mounted Single Crystal X-ray Diffractometer (SCXRD) for dedicated laboratory use.

Note: The configuration and specifications given here are indicative of requirements and higher / better performance is desirable.

TECHNICAL SPECIFICATIONS & DETAILS

Automated Single Crystal X-ray Diffractometer system (SCXRD) with ergonomically designed large enclosure for easy access of goniometer and crystal mounting and sufficient for small molecule single crystal data collection and structure determination of a wide range of inorganic, organic and metalorganic including organometallic compounds.

The diffractometer should possess a X-ray generator, HPAD / HPC / CMOS / CIPAD technology based detector, essential goniometer with other accessories and peripherals required to fully integrate the system facilitating international standard publishable quality data as per the guidelines of International Union of Crystallography (IUCr).

Necessary hardware and software starting from mounting of crystal to generation of crystallographic information file (.CIF) should be provided.

Power Supply: Operating voltage must be between 220 – 240 V (AC) .

The details of the required specifications are as follows:

Safety and General Specifications:

As per the highest international standards, fully X-ray protected enclosure safety system is essential with max. radiation level 1 micro-Sievert/h under measurement conditions. Major components of the diffractometer like the detector, source and goniometer must have been developed in house by the supplier and efficiency as well as working capability of these components must be proven from installations in other institutions in India and abroad.

Contd....6/-

X-ray Generator & Tube:

Computer controlled, automated with high voltage stability better than 0.01% for 10% variation in mains supply with a power output of 900 watts or more for use with Mo-K α source with all essential optics for the computer controlled data collection must be provided. The X-ray source should comply with the strictest safety regulations. The X-ray generator must be in house designed and manufactured by the SCXRD vendor as mentioned earlier and should be repairable on component level at the installation site. Repair work or replacement of spares needs to be done on site, the manufacturer of the XRD must confirm this in their quotation.

Cooling unit:

An appropriate water chiller of the correct technical specifications is to be provided for the X-ray generator; the chiller unit should require minimal maintenance.

Radiation enclosure: Fully X-ray protected enclosure as per international safety norms.

Goniometer:

Completely automated 2 circle / 3 circle / 4 circle horizontal goniometer with accuracy better than 0.01 deg. and reproducibility better than 0.0005 deg. along with test crystal should be provided for efficient data collection with minimized total data collection time. Recalibration of the goniometer should be possible on-site. The goniometer must be built in such a way that the extended directions of the axes intersect at a point, with an error not greater than 10 microns. Sample to detector distance control should be from 40-145 mm or better.

Detector and Beam optics:

Hybrid Photon Counting (HPC) or Hybrid Pixel Array area detector (HPAD) or Complementary Metal Oxide Sensor (CMOS) or Charge-Integrating Pixel Array Detector (CPAD), air / water cooled for single crystal frame data collection suitable for Molybdenum radiation (and also Cu radiation) latest technology and sensitivity with shutter less mode of operation for high speed and excellent data quality, should be offered. The detector should have the latest technical features / functionality like intrinsic anti-blooming signal-blurring effect with an active area of at least 3500 mm² or more.

Video microscope and Illumination:

The system must include a color video microscope to magnify the crystal, to capture screen frames and to measure and index crystal faces coupled with provided software for the required motion video. For numerical absorption correction, the software should allow the indexing of crystal faces by interactive use of video pictures or movies of the crystal investigated.

Contd.....7/-

Integrated software:

WINDOWS / LINUX based application software for data acquisition and processing, structure solution (automatic and or manual), refinement and instrumental control for single crystal, twins, low / high temperature, high pressure, charge density and modulated structure. The software should be able to perform complete data acquisition, absorption correction, scaling, space group determination, structure determination and final report generation as per Acta Crystallographica guidelines.

For data collection strategies, the software shall have predefined runs including Sphere, Hemisphere and Quadrant. Optimized runs shall provide for completeness/coverage as well as the facility for user defined runs. Software shall allow easy change of exposure time, scan ranges, scan width and detector distance and provide automatic re-measurement of overflow frames, automatic dark image acquisition and optional reference frames for tracking decaying samples. Integration of data sets collected with variable exposure times for different angular range or resolution windows. Software for Auto Structure Solution to be included in the basic scope of supply. The software shall allow remote access to the instrument including diffractometer, goniometer and X-ray generator functions to setup the experiment, view data as collected, process the data and solve and refine the structures remotely or off-line.

No public domain software is acceptable. Manufacturer must offer their licensed software developed by them. The offered software must include software for Structure determination. The offered data acquisition software package is to be compatible with SHELX, WinGX and SADABS. Multiple licenses of the software for data collection, refinement and analysis should be available.

Computer and Printer:

Desk Top PC – Latest model (Brands- Lenovo, Dell etc.) suitable to the SCXRD system. Minimum specifications of the PCs are: Licensed Windows operating system (windows 10). Intel i5 CPU (or latest), 1.7 GHz or better, 8GB RAM, 64-bit Operating System, 1 TB HDD higher. Intel Mother board, graphics card, 16x DVD RW. Latest LCD monitors > 20 inch.

Contd.....8/-

Crystal mounting accessories:

Following Consumables & mounting accessories should be offered as the part of the system Mounted Cryo-Loops of different dimensions (0.03, 0.05, 0.07, 0.4, & 0.6, mm – 20 pcs of each type) for crystals mounting.

Lindeman capillaries made of special glass with outer diameter of 0.2mm, 0.3mm, 0.5mm, (50 pcs of each type)

Paraton N or equivalent Cryo mounting oil – 2 nos.

Capillary cutting stone – 1 no.

Capillary Sealants: Duco Cement 29ml x 1 nos.

Red sticky wax 2 box

Super Glue 4 g tube – 2 nos.

Magnetic Base to mount on XYZ-Goniometer head. 49/64 mm – 2 no.

Test crystal: Two test crystals to be included in the basic system.

Goniometer Head: 2 Nos. of Goniometer head must be offered with the basic system scope of supply.

Microscope: For selection of a suitable crystal for data collection

- a) 0.8-4X zoom optics
- b) Transmitted and reflected light LED illuminator with independent control
- c) Eyepiece 10X
- d) Analyzer polarizer set

Uninterrupted power Supply (UPS)

Suitable online UPS for the whole XRD system and the PC, having 3 phase input and single phase output and SMF batteries (Make: Excide or equivalent brand) with a backup of **2 hours**.

Cryo-Crystallography Accessory: The equipment should include a crystal temperature attachment to cover the temperature range of 80 – 320 K. The system should be capable of running at 100 ± 0.1 k without ice formation. The system should be provided with all accessories (liquid nitrogen Dewar of minimum 60 L capacity, pressure regulator, transfer line etc.) required for trouble free operation and routine maintenance.

Contd.....9/-

Spare parts:

A separate price list giving current prices of all spares and accessories and consumables if any (including minor) required for maintenance and repairs in future after guarantee / warranty period must be attached / enclosed along with the quote (Financial bid) failing which quote may not be considered. If any spares & accessories other than the price list attached / enclosed by the firm are required for future repair, it will be borne by the supplier.

Warranty: Five years warranty on the complete system and accessories is preferred and must be clearly stated.

Note: The offered SC-XRD system model should preferably comply with the latest machinery directive, for electrical equipment and electromagnetic compatibility under fully CE compliant guidelines (or equivalent).
